



Cardiac Valve Replacement for Carcinoid Heart Disease

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Background:

Carcinoid syndrome causes carcinoid heart disease (CHD), the hallmark of which is degeneration of right heart valves. This may require surgical replacement. However, it has been demonstrated that carcinoid syndrome provokes intraoperative carcinoid crisis in up to 30% of patients. Here, we report the oncologic features and surgical outcomes of patients undergoing valve replacement for carcinoid degeneration at our institution.

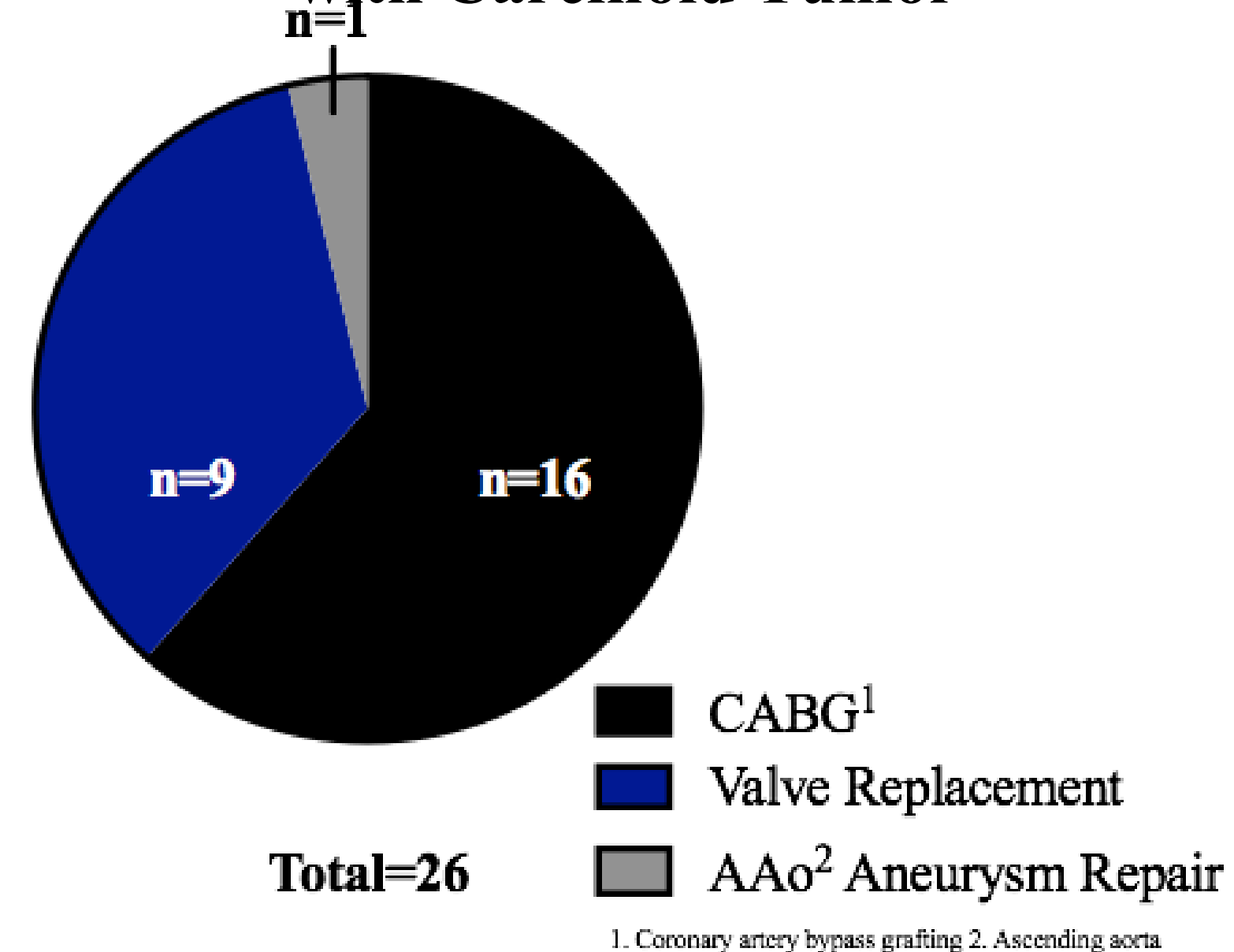
Methods

We reviewed our institution's database of patients with carcinoid tumor diagnosed from 2001 to present.

Results

We reviewed 578 patient records; 26 (4.4%) underwent cardiac operation, 9 underwent valve replacement (Fig1.)

Figure 1. Cardiac Operations in Patients with Carcinoid Tumor



Results

Table 1. Demographic & Oncologic Features Of Patients Undergoing Valve Replacement

Mean Age at Carcinoid Tumor Diagnosis (yrs)	54.6±3.2
% female	56%
% with small bowel primary ¹	89%
% with liver metastases	100%

The indication for valve operation was optimization prior to carcinoid tumor operation in 55% of patients. The echocardiographic findings in this population are summarized in Table 2. Of note, all (100%) patients had moderate-severe tricuspid regurgitation; no patient had aortic regurgitation.

Table 2. Clinical & Echocardiographic Features of CHD

Mean Interval from Carcinoid Tumor Dx to Heart Failure Symptoms (mos)	13.7±4.3
Mean Interval from Carcinoid Tumor Dx to 1st Abnormal TTE (mos)	14.3±4.2
Median Tricuspid Valve Regurgitation	Severe
Median Pulmonary Valve Regurgitation	Moderate
Median Mitral Valve Regurgitation	Mild
Median Preoperative NYHA ¹ Functional Class	3

Mean age at valve operation was 56.12±3.0 years. All patients underwent tricuspid replacement, 88% with bioprosthetic valves. Seven underwent pulmonary, and 2 mitral, valve replacement (100% bioprosthetic).

Table 3. Outcomes

Mean follow-up	17 months
Intraoperative Morbidity & Mortality	
Mortality	0
Carcinoid crisis	0
Difficulty weaning from CPB ¹	2
Postoperative Morbidity & Mortality	
Perioperative death	1 (stroke)
Re-operation for Recurrent CHD	3

1. Cardiopulmonary bypass

Conclusions

This is the largest modern series of valve replacements for carcinoid valve disease. Recurrent CHD is common, and developed in 1/3 of our patients, however valve reoperation is feasible. These patients can safely undergo valve replacement prior to debulking of intra-abdominal disease in order to improve cardiac function prior to large abdominal operations.